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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,421	04/01/2004	Pascal Scaramuzzino	AD6920	8852
23906 7590 03/30/2007 E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805			EXAMINER HAIDER, SAIRA BANO	
			ART UNIT 1711	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/30/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/816,421	SCARAMUZZINO, PASCAL	
	Examiner	Art Unit	
	Saira Haider	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### DETAILED ACTION

1. The rejections have been altered to reflect the amended claims.

#### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

- a. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 10-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. The phrase "having a heat of fusion of 16cal/g of less" has been recited in the claims in order to describe the semicrystalline or amorphous thermoplastic non-polyacetal resin.

5. The claim is attempting to limit the heat of fusion of both the semicrystalline and amorphous non-polyacetal resin, by stating that the non-polyacetal resin has a heat of fusion of 16 cal/g or less. However, the specification does not support this limitation. Applicants' specification discloses that the amorphous non-polyacetal resin has a heat of fusion of 1 cal/g or less; however, applicants claim states that the amorphous non-polyacetal resin can have a heat of fusion of up to 16 cal/g. Thus, the included limitation is rendered new matter.

6. Additionally, applicants' specification provides an example of a semicrystalline non-polyacetal resin with a heat of fusion of less than 16 cal/g. Hence applicants only have support for the particularly disclosed semicrystalline non-polyacetal resin, not for semicrystalline non-polyacetal resins in general. Thus the included limitation is rendered new matter.

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7. Applicants have included the phrase "wherein the viscosity of the non-acetal component is lower than the viscosity of the polyacetal." Applicants have cited page 9, lines 22-33 of the specification as providing support for this limitation; however, the examiner is unable to locate support for this limitation. Applicants have not disclosed in their specification the comparison of the viscosities of the non-acetal component and polyacetal component. Thus this limitation is rendered new matter.

8. Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the molecular weight limitation of the thermoplastic non-polyacetal resin makes the claims indefinite. It is noted that the molecular weight (for a polymer) defined by a number only is normally so meaningless as to be indefinite and does not enable or teach one skilled in the art to make the invention. Molecular weight should be defined by one of the standard typed (Mw: weight average molecular weight, Mn: number average molecular weight, etc) which are, except number averages, at low molecular weights only an estimate (approximately plus or minus 30 percent). However, if molecular weight is narrowly critical (i.e. necessary to establish patentability) there must be sufficient data to back calculate the property from which the molecular weight was calculated. (In that instance it is generally preferable to define the claimed molecular weight by the property). In *re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1998). See MPEP § 2164.01(a) and § 2164.04.

9. Note that in applicant's specification (page 6, lines 31-33), the "number average molecular weight" has been provided for the polyacetal resin; however, the molecular weight of the non-polyacetal resin is not defined in one of the standard types, as discussed above.

***Claim Rejections - 35 USC § 103***

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (GB 2,091,274) in view of Plachetta et al. (EP 0831116) as evidenced by Epstein et al. (US 4,410,661).

12. Suzuki discloses a process of treating polyacetal articles, wherein polyacetal resin plates are surface treated with an acidic solution, and then a thermoplastic paint is applied to the treated surface (page 1, lines 8-21).

13. Suzuki discloses that the surface treatment of the polyacetal articles using the acid solution is very effective in promoting strong adhesion of an undercoat to the articles (page 1, lines 19-21). In reference to the limitations of claims 11-13 regarding surface treatment, Suzuki discloses that the acidic solution is an aqueous solution of one or more inorganic acids, and one or more organic acids. Examples of suitable inorganic acids include hydrochloric acid, sulphuric acid, phosphoric acid and mixtures thereof, and an example of a suitable organic acid includes acetic acid (page 1, lines 22-26; claim 4). Hence in view of the forgoing, Suzuki would readily envisage utilizing of an acid solution comprising the claimed mixture of hydrochloric acid, sulphuric acid, phosphoric acid and acetic acid. Surface treatment of the polyacetal article of Suzuki with the acid solution is inherently considered etching, wherein since the process of Suzuki is identical or similar to the process claimed, it can be considered as etching.

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14. Suzuki discloses that after surface treatment of the polyacetal article with the acidic solution, the treated article is further coated with an undercoat of a paint, such as a urethane paint (EXP 1245) (page 1, lines 11, 58-60). In reference to claim 16, Suzuki discloses that after painting the treated article with the undercoat, it is coated with a top layer, which was cured via heat (page 1, line 64 to page 2 line 1).

15. In reference to the polyacetal article, Suzuki discloses that the term "polyacetal" includes any grade of polyacetal homopolymers, polyacetal copolymers having different compositions, and polyacetal homopolymers or copolymers modified with various kinds of compounds. Suzuki further discloses that examples of the modifiers include fillers, inorganic reinforcing agents, organic reinforcing agents, organic modifiers and stabilizers of any kind. It is noted that it appears that Suzuki does not distinctly disclose the presence of a thermoplastic non-polyacetal resin with a molecular weight of 1-50k, as claimed. Hence attention is directed towards the Plachetta reference. Suzuki and Plachetta are analogous art because they are from the same field of endeavor, formation of coated polyacetal articles. Plachetta discloses a polyacetal article comprising 30-94 pbw (percent by weight) of a polyoxymethylene homo or copolymer, and 0-2 pbw of a polyamide (page 3). An example of a suitable polyamide includes a polyamide with a molecular weight of 3,000 (page 9, ¶5-6; page 23). Specifically, Plachetta discloses that pre-mixing the polyamide with the polyoxymethylene prior to the mixing, stabilizes the raw polyoxymethylenes very well (page 7, ¶5). Additionally, Plachetta exemplifies that the polyacetal and polyamide, along with other components, are blended while molten and therein injected-molded resulting in formation of the article/substrate (page 22, ¶4-5; page 24, ¶4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the polyacetal resin of Plachetta for the polyacetal resin of Suzuki in order to ensure the polyacetal resin is stabilized.

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16. In reference to the newly added limitation regarding the heat of fusion of the non-acetal component, it is noted that Plachetta discloses that suitable polyamides include semicrystalline or amorphous resins (page 9, ¶5), wherein Epstein provides evidence that amorphous polyamides do not have a measurable heat of fusion (col. 1, line 64 to col. 2, line 20), hence have a heat of fusion of less than 16 cal/g, thus meeting the claimed limitation.

17. In reference to the newly added limitation regarding the viscosity of the non-acetal component being lower than the polyacetal, it is noted that the polyacetal component of Plachetta has a higher molecular weight than the exemplified non-acetal component of Plachetta (page 7, ¶3; page 23). Thus, it is clear that Plachetta envisages a polyacetal component with a higher molecular weight than the non-acetal component. Wherein it is understood in the art, that as the molecular weight increases the viscosity increases. Subsequently, it is inherent that the non-acetal component has a lower molecular weight than the polyacetal component, hence meeting the claimed limitations.

18. In reference to the limitations of claims 14 and 15, it is noted that it would have been obvious to one of ordinary skill in the art at the time of the invention to readily utilize any one of the conventional methods to form the molded articles and to paint the articles, as taught by Plachetta (page 22, ¶4-5; page 25, ¶1).

19. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki and Plachetta as applied to the claims above, and further in view of the Encyclopedia of Polymer Science and Technology (Polyamides, Plastics by Palmer).

20. The combination of Suzuki and Plachetta apply as above, but fail to expressly disclose that the thermoplastic non-polyacetal resin comprises a blend of a first and second polyamides of different molecular weights. Hence attention is directed towards the Encyclopedia of Polymer

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Science and Technology. The Polyamides article contained therein teaches that polymer blends of polyamides with other polymers are commercially available and are produced in order to obtain a balance of the properties of the two materials or to reduce moisture uptake (page 632, ¶1). Additionally, the article discloses that in extrusion of polyamides, the molecular weight and hence the viscosity of the compound plays an important role, for example a high viscosity (and high molecular weight) nylon is typically utilized in extrusion operations in order to give a high melt strength to maintain the shape of the extrudate. The article further discloses three polyamides, each with a different viscosity (high, medium, and standard), and each with a different molecular weight (30-40K, 20-30K, 15-18K) (page 634-635). It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the blend of polyamides with different molecular weights for the polyamide employed in the invention taught by the combination of Suzuki and Plachetta, wherein utilizing a blend of polyamides with different molecular weights would have been obvious in order to obtain various benefits such as a reduction in moisture uptake and a control of the viscosity of the polyamide blend and resulting polyacetal resin. It is inherent, as per the molecular weights provided above, that employment of a standard and high viscosity polyamide in the blend would result in a molecular weight difference of at least 5000. In reference to the limitation of claim 17 regarding the pbw of each polyamide comprising the blend, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.



***Response to Arguments***

21. Applicant's arguments filed 12/28/2006 have been fully considered but they are not persuasive. Applicant's essentially argued that the amendment removes the basis for the Examiner's rejection. The examiner has provided the revised basis for the rejection above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saira Haider whose telephone number is (571) 272-3553. The examiner can normally be reached on Monday-Friday from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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